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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,494	07/30/2003	Saurabh Kumar	350078.408	9683

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SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVENUE, SUITE 5400
SEATTLE, WA 98104-7092

EXAMINER	
WONG, XAVIER S	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/630,494	KUMAR, SAURABH	
	Examiner	Art Unit	
	Xavier Szewai Wong	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30th July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30th July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *30th July 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement submitted on *30th July 2003* has been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

Claims **13 – 16** are rejected under 35 U.S.C. 101 because ... the *machine-readable medium* is not claimed as a computer-readable medium, which must be executed by a computer, encoded with a data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and therefore, is an abstract idea with no tangible or concrete results are given, and thus, non-statutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims **1, 3 – 6, 9, 10 – 15, 17 – 20, 22, 24** and **27** are rejected under 35 U.S.C. 102(e) as being anticipated by **Crow et al (U.S Pat 6,944,672 B2)**.

Consider claims **1, 9, 13, 17** and **20, Crow et al** disclose an entry point (host *24*) coupled to a network device (router *16*) as shown in figure *1*. The device – containing a translation engine *80*, comprising machine-readable medium with instructions, to handle fragments (col. *4* ln. *56-63*) – determines if a packet received at the entry point is a head/primary fragment or non-head/secondary fragment (col. *6* ln. *18-25*; fig. *4* steps *102,108*). *(i)* If it is a non-head/secondary fragment, the router determines if a session (context) associated with a primary fragment corresponding to a secondary fragment is present (col. *6* ln. *37-47*), update (translate) the secondary fragment with routing information from the context (col. *6* ln. *44-52*), and forward the secondary fragment based on the routing information (col. *7* ln. *19-30*). A storage unit (memory *84*) coupled to the router to store the received secondary fragment if the context is not present (out-of-order) and wherein the router waits for corresponding primary fragment to be received at the host *24* (col. *6* ln. *53-60*). *(ii)* If it is a primary fragment, the router forwards the primary fragment to be processed by one feature – translation engine *80* (col. *6* ln. *18-34*; fig. *1*); an exit point coupled to the router (fig. *1*, connection between router *16* and internet *22*) wherein any corresponding secondary fragment stored in memory can be updated (translated) at the exit point (of the router) with routing (addressing) information that result from processing the primary fragment (col. *6* ln. *35-44*; col. *7* ln. *4-15*); and

the translated secondary fragment and primary fragment is forwarded from the exit point (col. *7* ln. *26-30*).

Consider claim **3**, and as applied to claim **1**, **Crow et al** disclose IP fragmented packets received at host *24* entry points (col. *2* ln. *18-22*; col. *3* ln. *13-17*).

Consider claim **4**, and as applied to claim **1**, **Crow et al** disclose a primary fragment includes all header information from its original packet (col. *3* ln. *63-65*) wherein a secondary fragment includes relatively less of the header information (col. *3* ln. *49-62*) when comparing figure *2A* (primary fragment) against figure *2B* (secondary fragment).

Consider claim **5**, and as applied to claim **1**, **Crow et al** disclose primary and secondary fragments containing (duplicative) header information from their original packet (col. *3* ln. *63-65*; col. *4* ln. *23-25*) and comprising: processing one of the fragments having the header information as primary fragment (col. *4* ln. *5-7*; fig. *2A* section *40*); and another one of the fragments having the header information as a secondary fragment (col. *4* ln. *23-27*; fig. *2B* section *60*).

Consider claims **6** and **12**, and as applied to claims **1** and **9**, **Crow et al** disclose applying routing/addressing information to the secondary fragments includes updating source and destination fields (col. *6* ln. *40-44*).

Consider claims **10**, **14** and **18**, and as applied to claims **9**, **13** and **17**, **Crow et al** disclose a translation engine (machine-readable medium with instructions) that forward secondary fragments having routing information, and the secondary fragments are not

processed similarly as the primary fragments (col. *7* ln. *12-30*; fig. *4* steps 118,120 – secondary; steps 110,112,114,116 – primary).

Consider claims **11**, **15** and **19**, and as applied to claims **9**, **13** and **17**, **Crow et al** disclose a translation engine (machine-readable medium with instructions) to generate a session (context) associated with a primary fragment (col. *6* ln. *20-32/44-47*); obtain the routing information from the context and apply the routing information to any corresponding secondary fragments received after the primary fragment (col. *6* ln. *47-52/58-60*); store any corresponding secondary fragment if the context has not been generated (as for out-of-order secondary fragments) and subsequently apply the routing information to the stored secondary fragments after the context has been generated (col. *5* ln. *4-12/19-23/27-34*).

Consider claim **22**, and as applied to claim **20**, **Crow et al** disclose an entry point (host *24*, which may be defined as a computer having software functions; col. *3* ln. *25-29*) and an exit point (located at the end of router *16*) comprising software as well (col. *4* ln. *44-45*).

Consider claim **24**, and as applied to claim **20**, **Crow et al** disclose a translation engine *80* that is embedded in the router *16* (network device) in figure *1* to process primary fragments (col. *6* ln. *22-30*).

Consider claim **27**, and as applied to claim **20**, **Crow et al** disclose a software program, in conjunction with the router, to handle primary and secondary fragments (col. *4* ln. *44-49*; col. *6* ln. *22-23/37-40*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims **2** and **26** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crow et al** (**U.S Pat 6,944,672 B2**) in view of **Marleux et al** (**U.S Pat 7,089,486 B1**).

Consider claim **2**, and as applied to claim **1**, **Crow et al** disclose the claimed invention except explicitly showing that during the head fragment processing, a *session pointer* data structure having routing information. The method further comprising at the exit point after processing the head fragment: *(i)* locating the session pointer data structure that was generated during the processing of the head fragment; *(ii)* generating the helper session based on the routing information from the session pointer data structure; *(iii)* using the routing information in the generated helper session to update any stored corresponding non-head fragment or a corresponding non-head fragment

subsequently received at the received at the entry point. **Marleux et al** disclose a pointer *803* of a first/head burst (fragment) of a frame field in an entry *802* (col. *8* ln. *15-21*); and afterwards, locating the pointer *803* (col. *8* ln. *25-28*); memory management then generates updated address fields (helper session) according to the pointer and use the pointer *803* to update routing/address field in a buffer descriptor table for a non-first/head burst (received at entry point) (col. *8* ln. *28-35*; figs. *10,11*). The pointer *803* is associated with FIFO buffers *810/404* – exit points (col. *6* ln. *35-39*; fig. *4* item *404*). It would have been obvious to one of ordinary skill in the art to incorporate the teachings above as taught by **Marleux et al**, in the method of **Crow et al**, in order to restore frames properly.

Consider claim **26**, and as applied to claim **20**, **Crow et al** disclose the claimed invention except explicitly mentioning another storage unit coupled to an exit point to store routing information from a helper session. Marleux et al disclose two (another) types of storages: a memory management unit *403* and FIFO (storage buffers) *910/404* located at an exit to the software processing component *405* that stores routing information, such as address, from an Service ID table (helper session) (col. *8* ln. *46-56*; fig. *9* items *403,910/404*; fig. *4* items *403-405*). It would have been obvious to one of ordinary skill in the art to incorporate the teachings of another storage unit coupled to an exit point to store routing information from a helper session as taught by **Marleux et al**, in the system of **Crow et al**, in order to map fragments to their corresponding queues.

Claims **7**, **16** and **21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crow et al** (**U.S Pat 6,944,672 B2**) in view of **Viswanath et al** (**U.S Pat 6,798,788 B1**).

Consider claims **7** and **16**, and as applied to claims **1** and **13**, **Crow et al** disclose the claimed invention except explicitly mentioning updating the non-head fragment with routing information from a helper session includes the *adding* (applying) of a routing tag to the non-head fragment. **Viswanath et al** disclose generating (adding/applying) a routing tag for a "not the first" fragment (updating) based on IP addresses and identifiers (helper session) from a lookup table (col. *8* ln. *13-23/46-51*; fig. *6* steps *104,116,120*). It would have been obvious to one of ordinary skill in the art to incorporate the teachings of updating the non-head fragment with routing information from a helper session includes the *adding* (applying) of a routing tag to the non-head fragment as taught by **Viswanath et al**, in the article of **Crow et al**, in order to identify an appropriate policy for the fragments.

Consider claim **21**, and as applied to claim **20**, **Crow et al** disclosed the claimed invention except mentioning the network device comprises a switch. **Viswanath** et al disclose a switch to handle fragments (col. *1* ln. *65-67*). It would have been obvious to one of ordinary skill in the art to incorporate the teachings of a network device switch as taught by **Viswanath et al**, in the system of **Crow et al**, for handling fragments.

Claims **8**, **23** and **25** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Crow et al** (**U.S Pat 6,944,672 B2**) in view of **Basso et al** (**U.S Pat 7,065,086 B2**).

Consider claims **8** and **23**, and as applied to claims **1** and **20**, **Crow et al** disclose the claimed invention except explicitly mentioning the processing of head fragments comprises at least one from a plurality of Layer 4 through Layer 7 features. **Basso et al** disclose processing every (head or non-head) IP fragment at layers 3 through 7 routing mechanism (therefore, includes layers 4 – 7) (col. *8* ln. *65-67*; col. *9* ln. *1-4*; col. *16* ln. *16-20*; fig. *4* items *301,306*; fig. *10* item *1006*). It would have been obvious to one of ordinary skill in the art to incorporate the teachings of processing head fragments comprises at least one from a plurality of Layer 4 through Layer 7 features as taught by **Basso et al**, in the method and system of **Crow et al**, in order to prevent the need of reassembling fragments.

Consider claim **25**, and as applied to claim **20**, **Crow et al** disclose the claimed invention except another network device coupled to the exit point having the feature to process a head fragment. **Basso et al** disclose besides a layer 3 through layer 7 routing mechanism *1006*, an XMT forwarding mechanism *1010* (at the exit according to fig. *10*) that processes a first (head) fragment (col. *15* ln. *46-53*; col. *16* ln. *43-46*). It would have been obvious to one of ordinary skill in the art to incorporate the teachings of another network device coupled to an exit point to process head fragment as taught by **Basso et al**, in the system of **Crow et al**, in order to improve processing speed.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A.) **Crow et al** (**U.S Pat 6,453,357**) disclose fragment processing and translation

B.) **White et al** (**U.S Pub 2002/0150100 A1**) disclose fragmenting and reassembling of sub-frames based on priority

C.) **Pochon et al** (**U.S Pub 2003/0048793 A1**) disclose a system to detect network intrusion by means of fragmentation, modifying, redirecting and reassembling of IP datagrams.

D.) **Matsunaga** (**U.S Pub 2002/0141448 A1**) discloses a packet transfer method that utilizes fragmentation and Maximum Segment-Size (MSS) rewrite techniques.

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be **brought to**:

Customer Service Window
Randolph Building
401 Dulany Street

Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier S. Wong whose telephone number is (571) 270-1780. The examiner can normally be reached on Monday through Friday 8 am - 5 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or (571) 272-1000.

Xavier S. Wong
X.S.W/x.s.w
4th July 2007

Seema S. Rao
SEEMA S. RAO 7/9/07
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600